

City of Greensboro

Solid Waste Collections Study



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Budget & Evaluation

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Downtown and Traditional Neighborhood Developments (TND's)

A study was commissioned in November 2004 by the Budget and Evaluation Department to study the consistency of solid waste collection practices with the City's land use development goals, as outlined in the Comprehensive Plan. Areas of high density development, such as the downtown area and traditional neighborhood development designations (TND's) pose new challenges with current solid waste collection practices and require standards and policies that have yet to be put into place. Without being addressed, these issues will increasingly impact future development in high priority areas.

The study set out to review current collection practices in these high density areas and to establish, through research on peer jurisdictions, standards for both downtown service and service to traditional neighborhood developments.

Downtown Service

Challenges associated with current practices:

Greensboro's downtown area has experienced tremendous growth over the last several years, as many small businesses, retail shops, restaurants, and nightclubs have opened or expanded. The amount of waste generated is significantly higher than before, as determined on a visual basis. The department does not currently keep records on collection tonnage in the downtown area, so no exact figures are available at this time. In addition to the growth in businesses, there has been recent growth in upstairs apartments and individual rental/homeowner units, which also add to the amount of waste generated. While garbage collection and disposal wasn't a problem back in 2000, it is becoming one now.

Small businesses and individual rental/homeowner units within the Central Business District (or CBD) are allowed to receive refuse and recycling service (by modified means) by the City's residential collection crews for disposal of their waste. Bagged waste, clear for refuse and green for recycling, is placed out on the sidewalk where a one man crew manually lifts the bags and places them in the back of a pickup truck. When the pickup truck is filled, the driver takes the pickup truck to a staged split body truck where two other employees transfer the waste and then make trips to the landfill as needed. The manual service, using three employees and the combination of a pickup truck and a split body truck, is provided twice per day, 4 days per week to the busiest streets of the downtown area. These include Elm and Greene Streets, from McGee to Bellemeade. Typical hours of service are between 5 and 7 am (for the previous day's waste) and then again around lunchtime. Less busy streets, such as Davie and Market Streets, are serviced once per day and others, at a minimum of once per week.

Some downtown businesses do participate in the automated collection program, as single family homes do, however these businesses tend to be on the outlying areas of downtown where automation is more feasible.

The downtown crew also provides manual service to approximately 275 public street cans located throughout the district. Some containers are serviced 4 days per week, twice per day, while others only need collection twice per week. When they are not running downtown routes, the 3 man crew provides manual service to other isolated and high density areas of the City. After their morning collection downtown, the "Isolated" crew (as it is called) services the Friendly Ave extension and UNCG areas on Mondays, College Hill on Tuesday/Fridays (the density and volume is such that College Hill receives service twice per week), Cumberland Court on Thursdays, and the Southside development on Fridays.

With growth downtown, there have been increasingly larger amounts of traffic at night and on weekends, when garbage collection services are not provided. Large amounts of bagged garbage and recycling accumulate on the streets of downtown in between times that the City services them. Many locations need more than the twice per day service on four days of the week, perhaps even on a 7 day a week basis.

Equity issues have also arisen as these small businesses have seemingly unlimited pickup with same property tax rate as homeowners and larger businesses with commercial dumpster service pay. Many small businesses have more than enough garbage to fill a dumpster; however there is no incentive for them to do so. The work load needed to manually collect the garbage of these high volume customers is burdening the City's resources, while they could be more efficiently serviced through commercial dumpster service.

City staff reports that a downtown business is only told they must use commercial dumpster service when the waste piles up so much that it becomes noticeable to citizens and other businesses. This is done on a problem-basis however, and not according to any pre-described standard. There have been several cases where the City Manager's Office has told a business that they must find an alternative for waste collection – Kress Tower being a recent example. With residential service, a homeowner cannot have more than 2 90 gallon containers and 2 90 gallon recycling containers before they must go to dumpster service. This standard would drastically change service downtown if applied there, since the residential standard would equate to approximately 10 bags per week for refuse and 10 bags for recycling.

In establishing a reasonable standard for how many bags of garbage could be set out on the street before a dumpster is needed, City staff brought up the possibility of conducting a simulation. This could be done on a daily or weekly basis, depending on the level of service that the City would like to provide. City-owned locations with no vested interest in garbage collection rates, such as the Cultural

Arts Center, could be used to for the simulation: employees could provide counts of bagged garbage being placed into the dumpster in between service days.

As of January 2005, there were only 41 stationary containers being serviced by the city downtown, at a total of 32 locations. Private haulers do service others; however we have no good way of identifying the numbers associated with private service. The City provides twice per week service for our customers, with a few exceptions for more days of collection. The current rate is \$116.50 per month for twice per week service, and the business must rent their own stationary container from a vendor (typically \$25 per month). Since we have no method of weighing containers as they are emptied and the routes often include more than just downtown businesses, bag counts or tonnage figures are not currently available for this service.

The City also provides recycling service, at no extra charge, to a business that has its own recycling stationary container. As described above, there is no incentive for a small and medium size business to use a stationary container at cost when they have unlimited manual pickup just for paying their property tax bill.

Downtown Waste Collection Efforts in National Jurisdictions:

Few jurisdictions in the United States offer or manage waste collection for businesses in the downtown district. The following locations offer examples of policies or practices that do exist.

Concord, New Hampshire – Population 42,345

The Downtown Solid Waste District was created in the 1980's when the City Council recognized that congestion in the downtown area and a lack of opportunity for each individual property to have a place to physically store waste on their property created a need for a collective solution. This Special Service District (SSD) is similar to the City of Greensboro's Business Improvement District (BID) and is governed by the general court of the state of New Hampshire's revised statutes (RSAs). The RSA made suggestions on how the cost of the service could be distributed and Concord decided to use assessed value of the properties within the SSD. There is an additional levy on the tax base within the District.

The City of Concord contracts out downtown collection. Bestway Disposal is the service provider. The contract cost of the district for fiscal year 05-06 is \$197,000. 135 properties are served within a several block area. There may be more than one business on some properties, so the number of businesses served is not readily available. Within the district, the contractor has placed 30 dumpsters and 6-7 cardboard recycling containers. Dumpsters are serviced 6 days a week in the early morning hours to avoid traffic and parking issues by one front-end refuse truck and a driver.

Leesburg, Florida – Population 18,079

Leesburg, Florida operates its solid waste collections as an enterprise activity, including the downtown service collection. Each customer pays a fee that is included as part of the monthly utility bill. Residential customers pay a single rate and commercial customers pay an amount based on the number roll-out containers they have or on the number of times each week the dumpster is serviced. There is no differential in the amount charged to downtown property owners; however, residents pay an additional fee if they have an additional roll-out container.

Those receiving the City's commercial dumpster service now have automated front-loader service. This replaces a semi-automated roll-out service. Some dumpsters are serviced either once per week while others are serviced 2 or more times per week, depending on amount of refuse generated.

Roll-out containers are 90 gallon in size. One operator in one truck rolls the container to the truck and an automated lift empties it. Roll-out routes are currently serviced once per week for both commercial and residential; however the City Manager has authorized twice per week collections. Routes have not yet been manipulated in order to accommodate this increased service. Solid Waste staff has proposed purchasing an add-on to the current GIS for routing, but funds were not available in the current year budget for the purchase.

The total cost to provide the service was not readily available. In addition to the collection service, the City of Leesburg provides \$14,000 for each enclosure that it installs. This covers the concrete pad, vinyl fencing and labor.

Lexington, Kentucky – Population 266,358

The City of Lexington, Kentucky operates its own downtown collection service as part of its enterprise fund. Assessed valuation of properties located within the service district is the method used to charge the fee to property owners. At this time, no additional charge is assessed to the downtown businesses or residents receiving the higher level of service.

Manual collection service is provided for Lexington's downtown using 4 employees, 2 on each truck. The total cost for providing the service is approximately \$267,000 (including disposal cost). Approximately 350 customers are served 6 days per week, 2 times a day. Two shifts are run: 2 a.m. – 10 a.m. and 2 p.m. to 10 p.m. The equipment used is a split-body rear packer that accepts corrugated cardboard on one side and non-recyclable waste on the other. Roll-out containers are used for the service.

Findings:

In discussing possible recommendations for downtown service, we came to no ideal method of service delivery— only to priority areas of discussion with all involved parties. Both privatization and continued City collection of waste (contracted or self-collected) in the downtown district should be discussed. Other enhancements may now be possible as a result of the Central Business District becoming a Business Improvement District with the additional tax levy.

Service, no matter which method chosen, could be provided by individual accounts, as is now, or by communal containers such as the ones that Concord, New Hampshire uses. If the continued collection of waste by City crews or contractors is desired, establishing maximum standards of volume for manual collection is of the highest priority. Commercial stationary containers should be used where possible, combining small businesses for better efficiency and use of space. Alleyways should also be studied for potential collection sites, with space for front loader backing/turning taken into consideration.

For those businesses who can reasonably be accommodated under the existing manual collection service, additional days (and hours) of service should be considered. Additional collection times and days are also needed for the public street cans located throughout the downtown district.

For businesses with large amounts of garbage, compaction containers, i.e. vertipaks, do a great job of reducing high volumes of garbage to manageable levels through compaction to a smaller size. The City currently does not have the ability to service vertipaks, but has recently considered their use for all commercial collection.

Lastly, it is important to note that some City departments and downtown revitalization groups show differing boundaries for the Central Business District. When standards are put into place, it will be important for all parties to decide on one boundary line for the Central Business District and to use it consistently,

Service to TND Districts (and other high density residential areas)

Challenges associated with current practices:

Manual collection service is currently provided to the City's two Traditional Neighborhood Developments (or TND's) and other high density residential areas with on-street parking using 2 man crews on split-body rear packer vehicles. This crew is often referred to as the "isolated" crew. Examples of other high density neighborhoods that receive this "isolated area" service include College Hill, the UNCG area, and the Cumberland Court development. Split body vehicles collect

slightly less volume (5-8 tons) than regular rear packer vehicles (9-10 tons); however they contain space for both refuse and recycling, 60% and 40% respectively. Refuse is collected in plastic bags and picked up on the street or behind the unit if an alleyway is present. Recycling is collected in green bags provided by the City. With this service, the crew can pick up to 450 units per day or 1800 a week.

Bulk waste goes into the refuse side of the split body if it will fit; if it will not, a bulk service truck is called to come pick up the item. Housing units in these neighborhoods either receive yard waste pickup or have landscaping contracts with companies that dispose of the yard waste themselves. For development areas that do receive City service, yard waste is either placed in front of individual homes or a space has been designated space for collective pickup. Appliances are picked up by City crews if the home or unit is individually owned; if the unit is centrally managed by an association or rental office, City crews do not pick it up. The yard waste and bulk services are provided only on a neighborhood by neighborhood basis; there may or may not be weekly routes running through all of these developments.

In Southside and Willow Oaks, the City's 2 TND's, there are instances where a pickup truck must be used to navigate tight streets or alleyways. Alleyways in both have been built to a 16 foot radius for passage. Garbage is then taken back to a staged rear packer, where it is transferred for disposal, much the same way as collection is handled in the downtown business district.

The newest TND is Willow Oaks. Construction is only about half completed; there are approximately 140 units or homes now occupied. Residents of Willow Oaks place their waste in 32 gallon containers, purchased by Housing and Community Development. The units were built with cubby spaces in the rear alley ways to accommodate the 32 gallon containers. Yard waste throughout Willow Oaks is mostly handled by contractor, with his own disposal. Bulk collection by City crews is provided as needed. Some single family homes will have gated front and street front parking, so they cannot be automated. Solid waste crews will have to run the rear packer service, with a supplemental pickup truck used for actual collection. The planned multi-level, multi-family apartments will bag their garbage and place it out in a designated area on their weekly day of pickup – no commercial dumpster service was planned for these units. The community center will have a dumpster, however.

The schedule for collection of TND's and other isolated areas is as follows:

- UNCG and Friendly Ave. extension – Monday
- College Hill – Tuesday and Friday
- Cumberland Court – Thursday
- Southside – Friday

Although denied in the past for automated service by the Environmental Services Department, solid waste crews now service most attached units with no street front parking as they do single family homes - in an automated fashion. This change went into effect earlier this year. Chapter 25 of the Greensboro Code of Ordinances was changed to reflect the ability of the department to pickup some multi-family units with 8 or more attached units. The revision of this ordinance resulted in Solid Waste management picking up an additional 1100 units. Reedy Fork is a good example of a development that is now able to be automated. It has mixed development and high density, but can receive service as single family homes do because the units have driveways and can be easily automated. After the ordinance changes, manual service is only provided to units or homes with on-street parking, alleyways, or tight backing/turning issues.

The method in which the City approves plans for new neighborhoods and developments presents a challenge to solid waste crews and managers, especially with the emphasis now being placed on high density and infill development. The City's Technical Review Committee, or TRC, reviews plans for new neighborhoods and developments and considers service provisions for City departments. If a plan is submitted and stamped for private garbage service, Solid Waste Management does not receive the plan for review and comment. At the developmental stage, developers often make the decisions for their homeowners to either go with private collection service (at an additional cost) or dumpster service. Once built, if the homeowners want something different, i.e. residential service as provided with their tax dollars, then it is too late to fix the plat and Solid Waste Management must find a way to meet their needs.

Solid waste managers also have concerns regarding street width and room for backing vehicles along these TND and isolated routes. Managers report that the 16 foot radius of alleyways is not sufficient to run an automated service with a regular size vehicle, so manual service is the only service offered. When asked, employees of Solid Waste Management report that 17-18 feet is needed for clearance of automated side loaders – 14 feet for truck and 3-4 feet for the automated hand that lifts and empties the containers. Adequate space is needed to back or turn around vehicles. Vertical canopy, trees, and overhang of gutters also prove to be challenging.

Private streets, streets not meeting specifications can only be picked up with waivers obtained from the homeowners. Because our liability is different than the private haulers, service is only provided to the streets who strictly meet the standards or have waivers in place.

Research from Peer North Carolina Jurisdictions:

The following table summarizes what other NC cities are doing with regard to solid waste collection in Traditional Neighborhood Development districts or other areas

where collection efforts are hampered by on-street parking and tight space restrictions.

City/Town	TND or Similar Isolated Areas	Method of Service Delivery
Raleigh	Isolated areas only	Semi automated, 2 additional employees gather carts and roll them to one location where automated pickup can be completed. Residential collection fees are charged, but there is no cost differential for isolated area service.
Charlotte	Isolated areas only	Placement of carts by residents at specified location for semi-automated pickup (street corners, openings in the pavement), all collection services covered by tax rate.
Winston Salem	Isolated areas only	Currently all services are manual. Service in a TND or similar area would remain manual if collection went to automated service in the future, all collection services covered by tax rate.
High Point	TND under construction	Regular automated (plans made to fit truck needs), all collection services covered by tax rate.
Gastonia	One TND complete, another under construction	Regular automated service (plans made to fit truck needs), no cost differential. There is an ordinance in place for TND's, which requires alleyways to be publicly maintained with 16 feet of pavement, an 18 inch valley gutter, and a 30 foot right-of-way. All collection services covered by tax rate.
Concord	Isolated areas only	Smaller (25 cy) trucks are used on tighter streets (service is contracted with BFI) and they provide a manual rear loader service in these areas, same smaller trucks used on other days for regular yard waste routes. All collection services covered by tax rate.
Huntersville	TND	Regular automated service (contracted with Waste Management). The zoning ordinance includes a 12 feet alleyway radius with concrete ribbon (see narrative for more information). No TND will be approved unless it meets the standards. All collection services covered by tax rate.
Davidson	TND	Regular automated service (contracted with BFI) with zoning ordinance that specifically addresses alleys within the city. Width of alleyways must be "navigable" by garbage trucks and emergency vehicles – most are 12 foot, including 1 foot (on each side) of concrete ribbon and meet street standards. All collection services covered by tax rate.
Cary	TND and isolated areas	Manual backyard service (all services are currently manual). Residential collection fees are charged, however there is no cost differential for TND or isolated areas since all services are currently manually provided.

A recent site visit to Huntersville provided both information regarding TND zoning ordinances in place there and a visual tour of what works and what doesn't work in solid waste collection practices.

The City of Huntersville contracts with Waste Management for solid waste collection, including refuse, recycling, yard waste and bulk items. Refuse and yard waste are collected in 90 gallon roll-out containers, while recycling and bulk are collected manually (recyclables are placed in small bins). They use regular size side loaders for automated service throughout the city. In order to service TND-zoned alleyways and streets not meeting city specifications, Waste Management obtains a written release by the homeowners (or homeowner association). The alleyways are one way in traffic circulation and have been rather narrow in width from their inception.

Huntersville's first traditional neighborhood development district was formed in 1996. Any lot less than 60 foot in road frontage requires the provision of an alleyway in the rear. Problems with trucks using grass and curbs for tight turns emerged, as well as deteriorating pavement due to the weight of the collection vehicles. The city began looking at alleyway service issues in 1999 and in 2004, they adopted specific standards for private alleyways and building placement lines for TND's in their zoning ordinance. The standards include 1 foot concrete ribbons on both sides of 10 feet of asphalt, for a total of 12 feet in alleyway width (see Attachment A for photos). Standard size side-loaders continue to provide automated collection within this 12 feet radius. They also adopted standards for materials used as a base under the asphalt in alleyways according to the same standards of other city streets. In cases where damage to the asphalt occurs (due to weight of the trucks), the concrete ribbon keeps the pavement in place and splitting to a minimum.

In addition, city engineers must know the turning radius of solid waste vehicles needed and circulation plan for traffic on all TND development plans in order for the plans to be approved. An approved plat, under the new ordinance, specifies that alleyways are private, however public access is needed for emergencies and routine public services. Waste Management is responsible for obtaining the needed waivers from each neighborhood or homeowners group. Waste Management is also responsible for any damage incurred in the delivery of service.

A great deal of education was done with residents regarding proper placement of containers along the alleyways and with solid waste collection drivers regarding caution and respect for streets and alleyways. Additional oversight is also provided by Waste Management to their drivers in hopes of decreasing damage to streets, alleyways and personal property.

Several recent additions to service delivery in Huntersville include the use of flared alleyway entrances and creative right-of-way uses to prevent on-street parking. Flared entrances have begun to be incorporated in newly developed neighborhoods, although this is currently not in the zoning ordinance; these entrances prevent trucks from using the grassy areas to better navigate corners (see Attachment A for photos).

To minimize vehicles parking out in the alleyways, one newer development has put into place standards for either a 20 foot right of way or a 1 foot right of way off of the housing unit/ garage to keep cars either in the garage or completely in the driveway. Spaces falling in between tend to leave enough room for the car to hang out over into the street and block solid waste vehicles from passing through.

Findings:

The Comprehensive Plan encourages more high density development in activity centers, along certain corridors, and in the downtown district – it is important that our city services support such development. The Comprehensive Plan also states as an objective the promotion of infill development. The downtown area will experience high density housing developments in the near future, primarily around Southside, Bellemeade, Blandwood, South Elm/Lee Streets and along North Elm street.

To achieve these objectives, one identified strategy will be to establish standards for new forms of development, including TND's and pedestrian scale development. Based on research, other jurisdictions already include TND's and high density development in their planning ordinances. If the developer or homeowner wants municipal service, the ordinance clearly lays out the standards which the development must meet. Upon completion, Greensboro's new Land Development Ordinance (or LDO as it is often referred to as) will give the City a chance to establish standards for setbacks, parking, alleyways, concrete ribbons, etc. in high density areas.

For TND's specifically, research shows that it is possible for our solid waste collection crews to automate the TND developments within the current alleyway width. Other jurisdictions have had success with as little as 10-12 foot alleyways. Exceptions for streets with tight spaces and parked cars will always remain; however alternatives such as semi-automation of 90 gallon containers rolled to a designated location, either by the resident or by solid waste employees, should be considered.

As an alternative to City crews collecting the waste, services could be contracted out to lower risk and liability to the City, using the above mentioned standards put into place by planning ordinance. A cost study would have to be completed to further study this option.

Attachment A

Photos of TND Neighborhoods in Huntersville, NC



A typical TND before standards for concrete ribbon were put into place.



An example of a TND with the concrete ribbon on each side and 12 foot radius.



An example of the flared entrances now being used in new TND developments.



A close up example of a flared entrance to the alleyway.

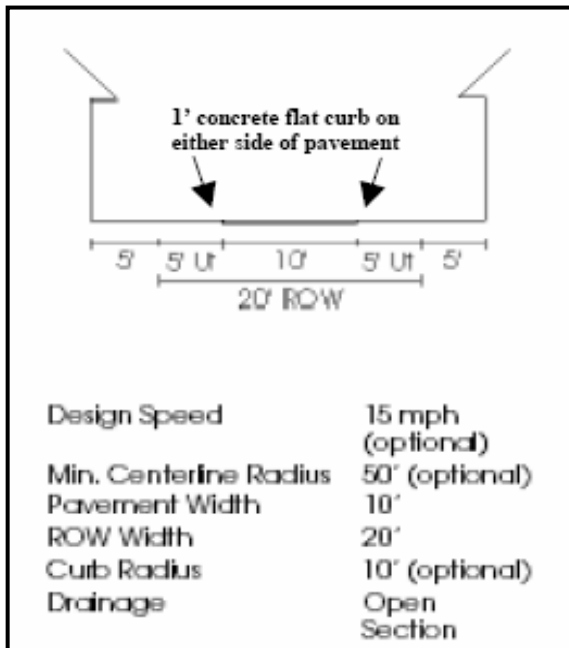


Diagram for Alleyway Standards as amended in 2004 Zoning Ordinance.